Amendments to the Drawings:

The attached sheet of drawing includes changes to Fig. 1. This sheet replaces the original sheet.

Attachment: Replacement Sheet

REMARKS/ARGUMENTS

I. Allowable Claims

According to the Office Action, claims 8-10 and 18-20 are objected to for being dependent upon a rejected base claim, but would be allowable if rewritten in independent for including all of the limitations of the base claim and any intervening claim. The Examiner is sincerely thanked for finding that these claims present allowable subject matter. In response, claims 8-10 and 18-20 are rewritten in independent form as new claims 41-46.

II. Drawings

According to the Office Action, Figure 1 should be designated with the legend --Prior Art--. In response, the drawings are amended to designate Figure 1 accordingly.

III. Rejections Under 35 U.S.C. 102 and 103

According to the Office Action, claims 1-7, 11-17, 21-26, and 28-40 stand rejected under 35 U.S.C. 102(b) for allegedly being anticipated by the Watson Patent (US 6,445,322). Claims 27, 30, and 35 stand rejected under 35 U.S.C. 103(a) for allegedly being unpatentable over the Watson Patent in view of the applicant's admitted prior art (APA). These rejections are respectfully traverse insofar as they apply to these claims as amended.

Independent claims 1 and 28 are amended to better define the claimed invention. Specifically, claim 1 is amended to recite "a control circuit to reduce a variation of a voltage present at the summing node of each of said current steering segments in response to a difference in the voltages present at the positive and negative outputs, and the switching of at least one of said differential transistors". Claim 28 is amended to recite "a control circuit to reduce a variation of a voltage present at the summing node of each of said current steering segments in response to a difference in the voltages present at

the positive and negative outputs, and to a change in the steering of at least one of the currents between the positive and negative outputs".

When at least one of the current steering segments switches the corresponding current, the voltages present at the positive and negative outputs change. This is because a change has occurred in the overall currents directed at the positive and negative outputs. If there is no compensation, the voltage at the summing node of the current steering segment that switched will consequently change because that node was previously connected to the positive output and has now changed to the negative output, or vice-versa.

As described in the specification, the first control circuit 230P is responsive to the positive output voltage to control the threshold voltages of the positive differential transistors M31 to M3n such that the variations of the voltages at the summing nodes are substantially reduced (specification, paragraph [00024]). Similarly, the second control circuit 230N is responsive to the negative output voltage to control the threshold voltages of the negative differential transistors M41 to M4n such that the variations of the voltages at the summing nodes are substantially reduced (specification, paragraph [00024]). Thus, the control circuit reduces the variation of the summing nodes in response to change in the steering of at least one of the current steering segments and a voltage difference between the positive and negative outputs.

Such element of the claims are neither described nor suggested by the Watson Patent nor the admitted prior art. In the Office Action, it is alleged that the control circuit of the claimed invention is the transistor 103-1 biased by bias voltage V_{bias}. However, that transistor is merely a current source to generate the current for the corresponding current steering segment, and the bias voltage V_{bias} is used to operate the transistor 103-1 in the saturation operating region (col. 2, lines 1-6). Such control circuit, is not responsive to the positive and negative output voltages, and therefore cannot reduce the variation of the summing node voltage in response to a difference in the voltages present at the positive and

negative outputs, and to a change in the steering of at least one of the currents between the positive and negative outputs, as required by the claims.

Nor are the other control circuits described in the Watson Patent responsive in this manner to the positive and negative output voltages. Figure 1a illustrates a current steering segment 150 further including a cascode transistor 151 to increase the output impedance of the segment 150 (col. 2, lines 30-41). Figure 2 illustrates a current steering segment 200 further including a cascode transistor 202 controlled by an operational amplifier 203 to further increase the output impedance of the segment 150 (col. 2, line 42-col. 3, line 18). None of these circuit are responsive to the positive and negative outputs of the DAC. In fact, the circuits described in the Watson Patent is similar to that of the admitted prior art which includes current steering segments each having a current source transistor M1n, a cascode transistor M2n, and a differential pair of transistors M3n and M4n. As discussed in the specification, this circuit does not reduce the variation of the voltage at the summing node, which has adverse effect on the DAC's dynamic range capability (specification, paragraph [0006]).

In view of the foregoing amendments and remarks, allowance of this patent application is respectfully requested.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, please charge any such fee or any deficiency in fees or credit any overpayment of fees to Deposit Account No. 05-1323 (Docket 100628.53197US).

Respectfully submitted,

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Dated: 1/31/05 By George L. Fountain

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Laura R Dixon 1/31/05

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APPENDIX